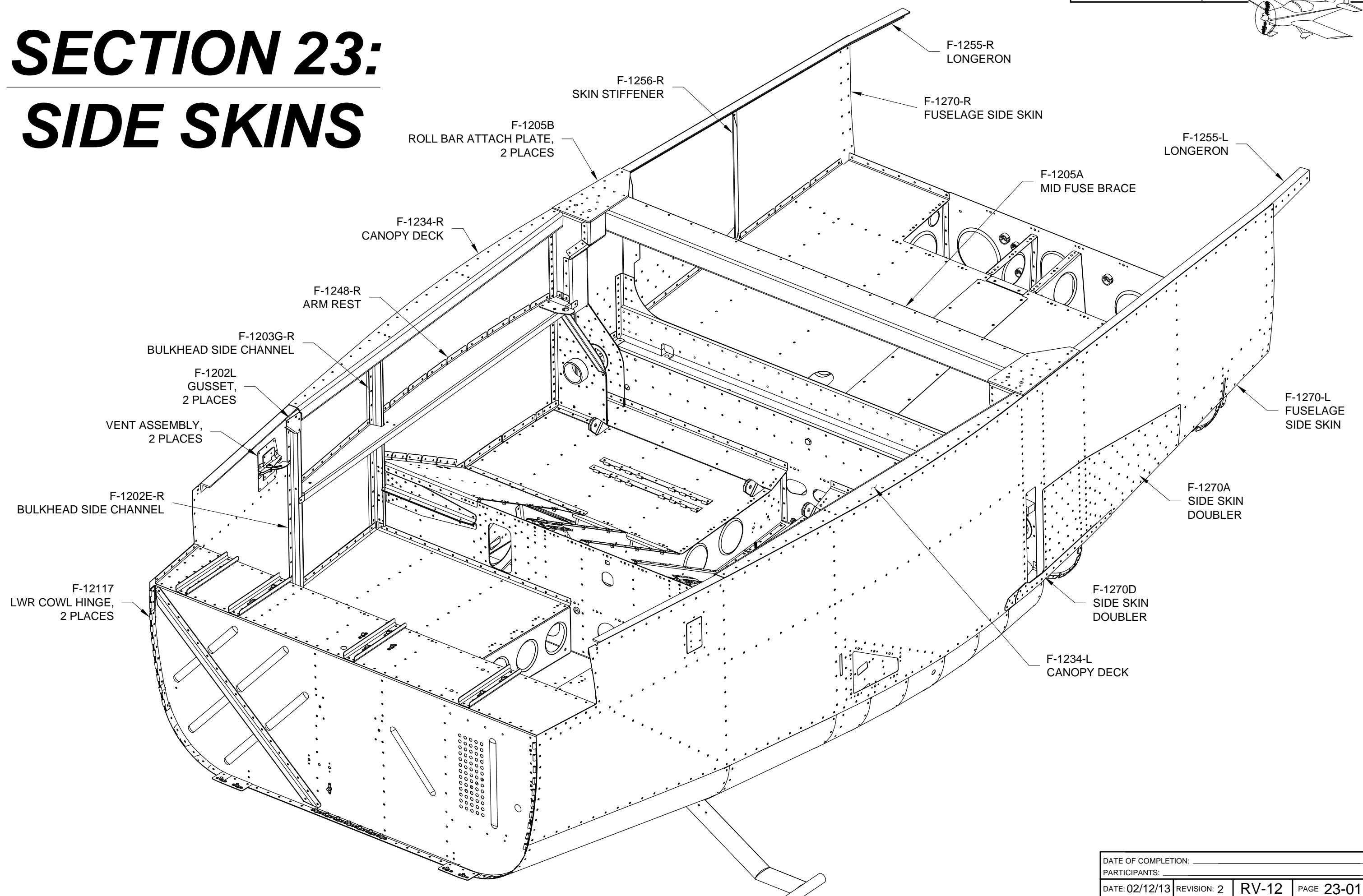


SECTION 23: SIDE SKINS



NOTE: This page describes making the left longeron. The right is a mirror of the left.

Step 1: Cut the F-1255-L and -R Longerons from AA6-125X3/4X3/4 per the dimensions in Figure 1.

Step 2: Mark the end of the twist, start and end of the curve, aft end of template and start of bend lines on the F-1255-L and -R Longerons as shown in Figure 1.

Step 3: Open the angle of the longeron as shown in Figure 4 from the start of the longeron to the end of twist & open line as shown in Figure 1. Clamp the longeron in a padded vise at the end of twist & open line as shown in Figure 1. Use a crescent wrench as shown in Figure 3 to twist the longeron inboard as shown and per the dimensions in Figure 1. When finished the top faces of the longeron both fore and aft of the end of twist & open should lay flat against a table. See Figure 6.

Step 4: Clamp the F-1255-L Longeron in a padded vise at the start of curve line and pre load the free end. Using a rubber mallet, firmly strike the longeron adjacent to the vise to produce a bend. Repeat this process at one inch intervals to produce a curve that matches the Template (F-1234-L Canopy Deck) within a sixteenth of an inch. See Figure 1.

Check the curve often to prevent over bending. The longeron can be placed in a six-inch vise without removing any of the bend, so it is easy to add more curve later. Remove curve by clamping the mid fuse longeron at the required point and pulling back slightly.

Check that the mid fuse longeron does not bend out of plane vertically as it is being bent in the horizontal direction. If this occurs, rotate the mid fuse longeron 90°, clamp it in a vise, bend it back straight with your hands, then recheck the curve with the template.

Clamp the longeron at the start of bend line at the aft portion of the longeron as shown in Figure 1. Using the method described above bend a single bend in the longeron as shown in Figure 1. As before check that the angle has not bent out of plane and adjust as before.

Step 5: Deburr the edges of the F-1234-L & -R Canopy Decks.

Step 6: Using a scrap piece of .025 thick aluminum to simulate the F-1270 Fuselage Side Skin, position the F-1234-L Canopy Deck to the F-1255-L Longeron as shown in Figure 2 (the canopy deck will overhang the longeron by .025). Flush the aft edge of the canopy deck with the aft end of the template mark, then clamp the parts together. Match-Drill #30 the longeron using the canopy deck as a drill guide. Take care when drilling to ensure that the drill is perpendicular to the canopy deck. Repeat this step to match-drill the F-1255-R Longeron.

Step 7: Deburr the F-1255-L and -R Longerons.

IF THE TEMPLATE INTERFERES WITH THE VISE USE F-1234-R FLIPPED UPSIDE DOWN

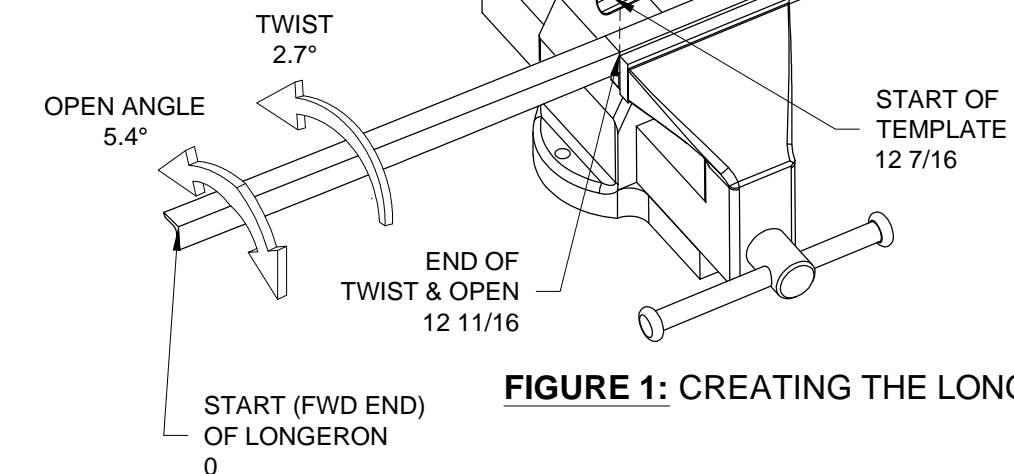


FIGURE 1: CREATING THE LONGERON

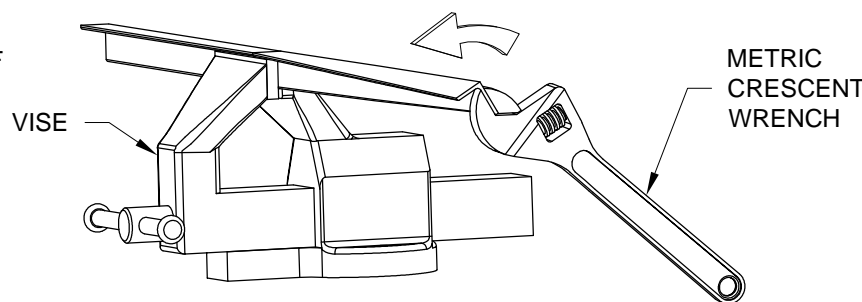


FIGURE 3: LONGERON TWISTING

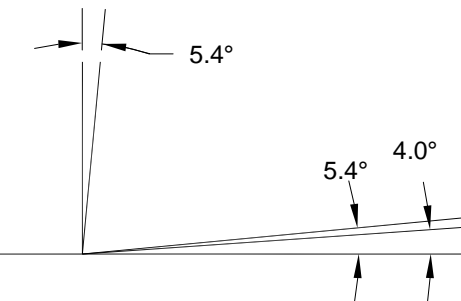


FIGURE 5: ANGLES

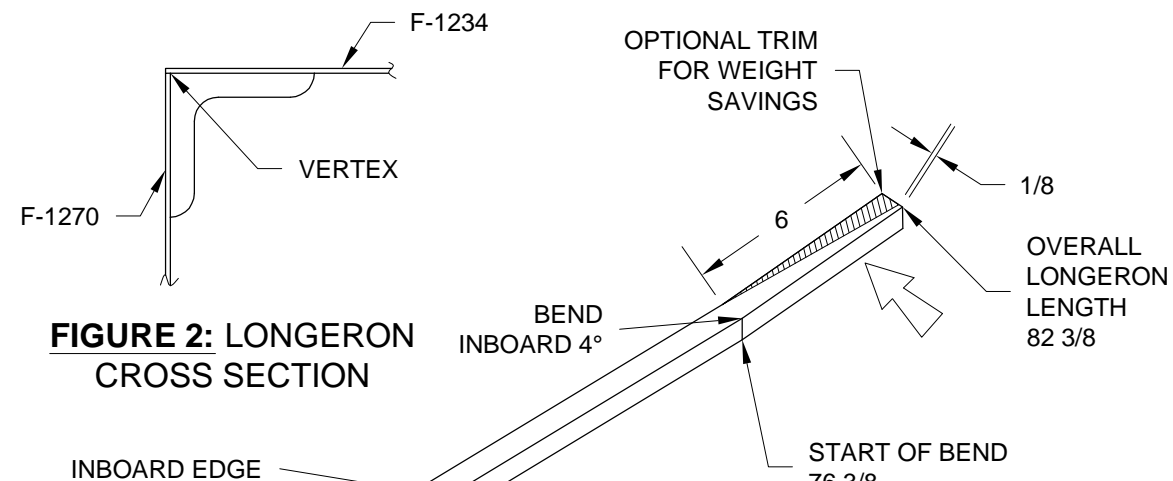


FIGURE 2: LONGERON CROSS SECTION

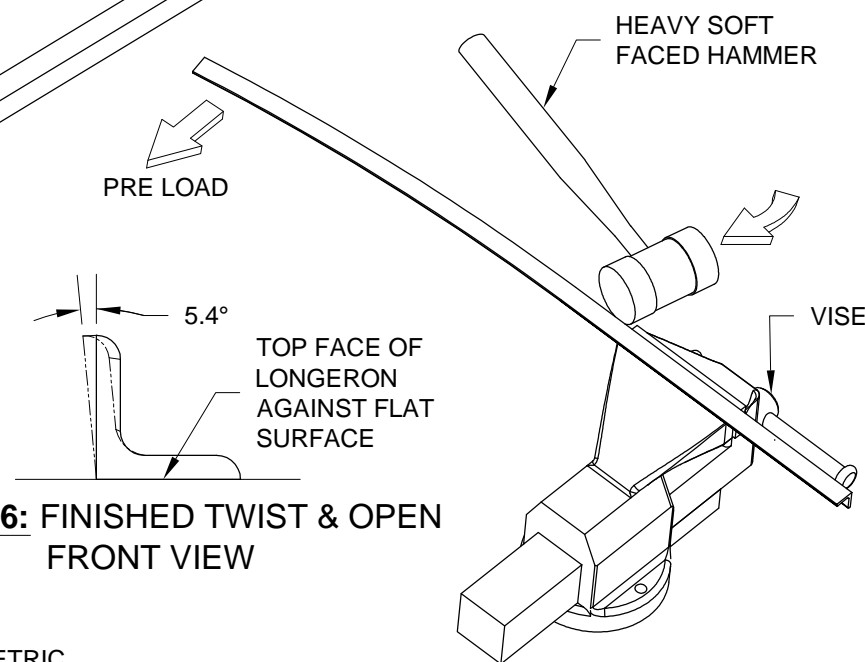


FIGURE 6: FINISHED TWIST & OPEN FRONT VIEW

FIGURE 7: LONGERON BENDING

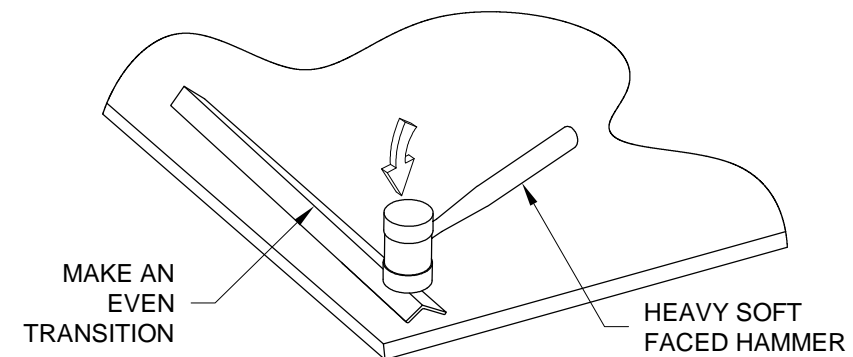
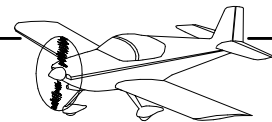


FIGURE 4: LONGERON OPENING



Step 1: Machine countersink the top face of the F-1205B Roll Bar Attach Plates for the nutplate attach rivets and the locations called out in Figure 1 to create mirrored left and right parts.

Step 2: Rivet nutplates to the F-1205B-L and -R Roll Bar Attach Plates as shown in Figure 1 (Temporarily thread a bolt into the nutplate while riveting).

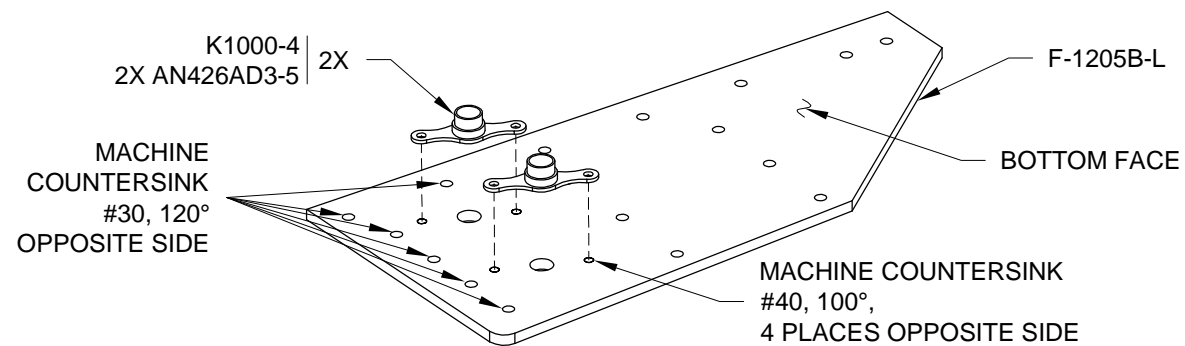


FIGURE 1: LEFT ROLL BAR ATTACH PLATE

Step 3: Rivet the F-1205A Mid Fuse Brace to the aft side of the F-1204B-L and -R Aft Bulkhead Sides. See Figure 2.

Step 4: Rivet the F-1205B-L and -R Roll Bar Attach Plates and F-1205C Mid Fuse Brace Close-out to the F-1205A Mid Fuse Brace and F-1204C-L and -R Fwd Bulkhead Sides (do not rivet the roll bar attach plate to the F-1204F-L and -R Aft Side Bulkheads). See Figure 2.

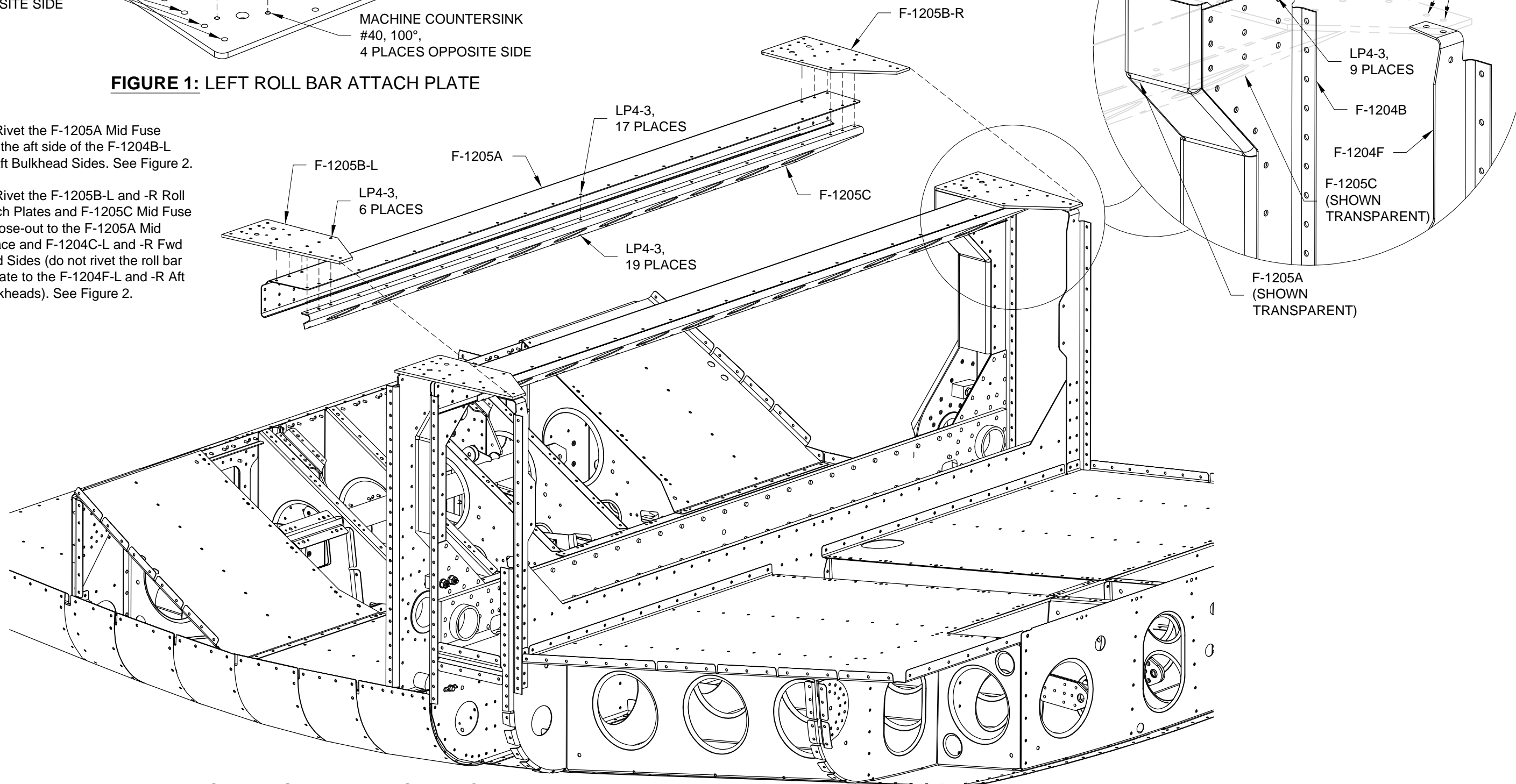


FIGURE 2: INSTALLING THE MID FUSE BRACE



Step 1: Cut apart then deburr the F-1203H-L and -R Arm Rest Brackets. See Figure 1.

Step 2: Rivet the F-1203H-L Arm Rest Bracket to the F-1203G-L Bulkhead Side Channel as shown in Figure 2. Repeat this step for the right side of the aircraft.

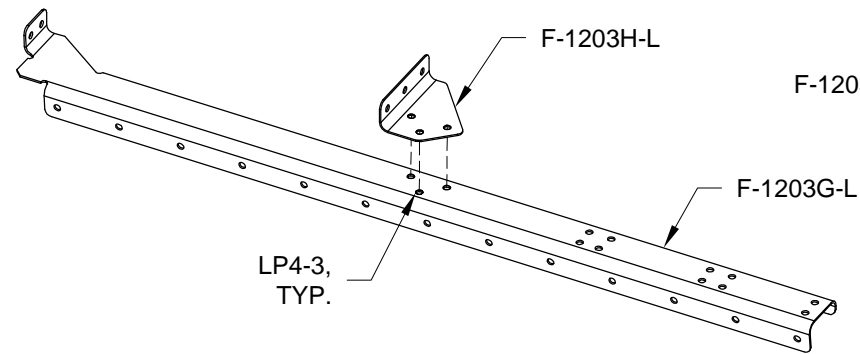


FIGURE 2: INSTALLING THE ARM REST BRACKET

Step 3: Rivet the F-1202E-L and -R Bulkhead Side Channels to the F-1202F Bulkhead per the call outs in Figure 2. Rivet the F-1203G-L & -R Bulkhead Side Channels to the F-1203A Bulkhead.

Step 4: Remove the tab from the notch in the F-1248-L & -R Arm Rests that is for the F-1203G-L & -R Bulkhead Side Channels.

Step 5: Match-Drill #30 forward tabs of the F-1248-L and -R Arm Rests to the F-1202E-L and -R Bulkhead Side Channels. Match-Drill #30 the aft tabs of the arm rests to the F-1204C-L and -R Fwd Bulkhead Sides. Deburr the bulkhead side channels and fwd bulkhead sides.

Step 6: Rivet a F-1248B Fuselage Pin Latch to both the F-1248-L & -R Arm Rests as shown in Figure 3.

Step 7: Rivet the F-1248-L and -R Arm Rests to the F-1202E-L and -R Bulkhead Side Channels. Rivet the arm rests to the F-1204C-L and -R Fwd Bulkhead Sides. Rivet the arm rests to the F-1203H-L and -R Arm Rest Brackets. See Figure 3.

Step 8: Insert the F-1234-L and -R Canopy Decks and F-1255-L and -R Longerons (should still be clecoed together as an assembly) into the fuselage skeleton. Cleco the canopy decks to the upper tab in the F-1203G-L and -R Bulkhead Side Channels. See Figure 3.

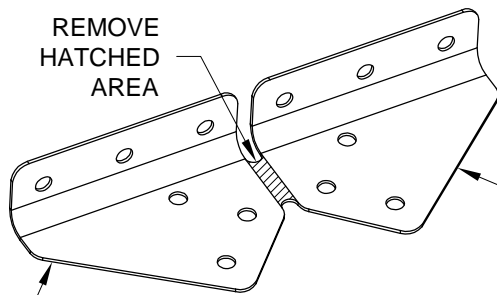


FIGURE 1: SEPARATING THE ARM REST BRACKETS

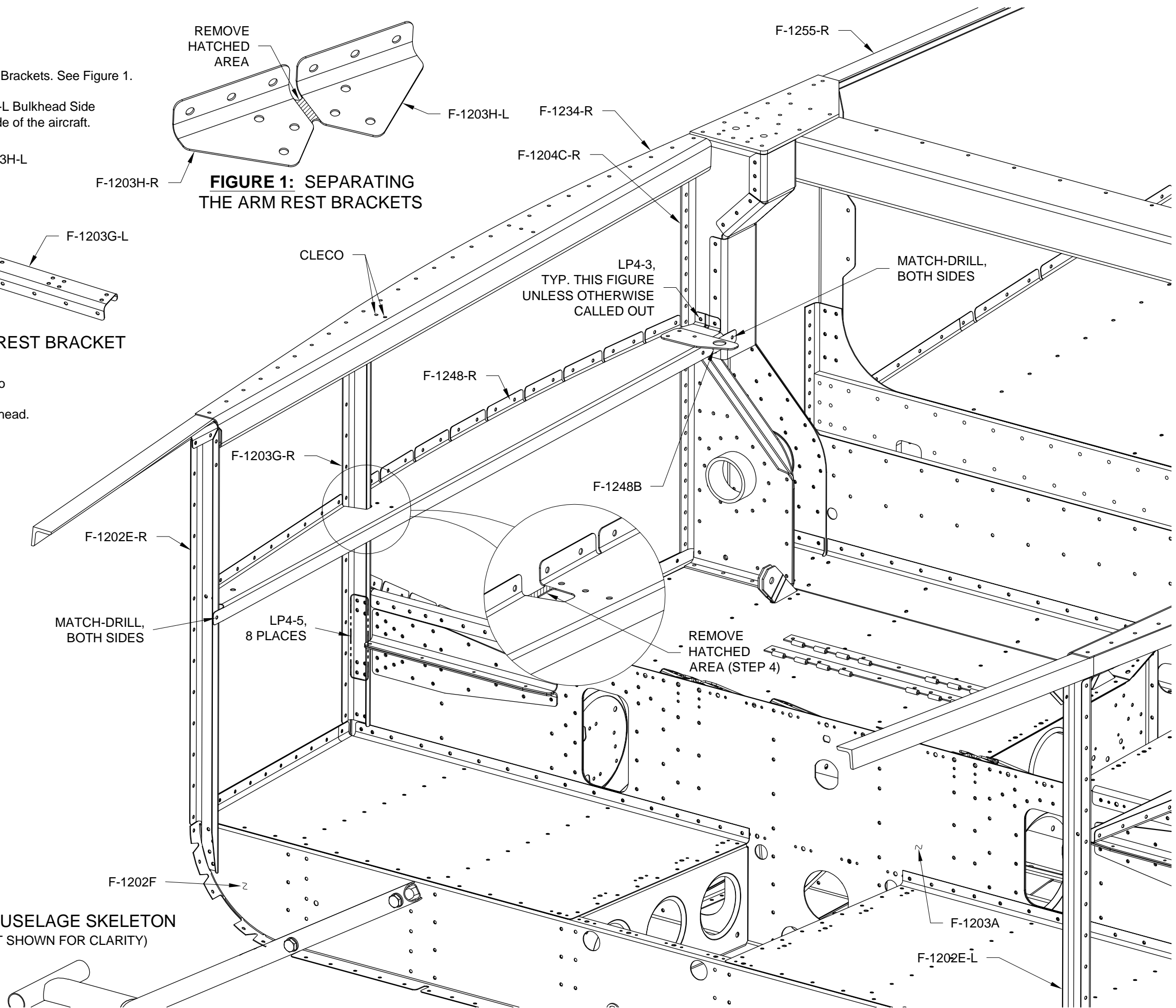
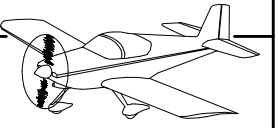


FIGURE 3: MID FUSELAGE SKELETON
(SOME PARTS NOT SHOWN FOR CLARITY)



Step 1: Cut out the wing spar penetration holes in the F-1270 Fuselage Side Skins to create left and right side skins. Start by marking out the shaded areas labeled in Figures 1 and 2. Drill a large hole with a step drill inside the shaded area (marked remove hatched area in Figures 1 and 2). Use snips to cut close to, but not at the edge of the shaded area. Snip around a final time removing material up to the trim line around the shaded area. Deburr the edge of the hole.

Step 2: Mark the F-1270 Fuselage Skins left and right.

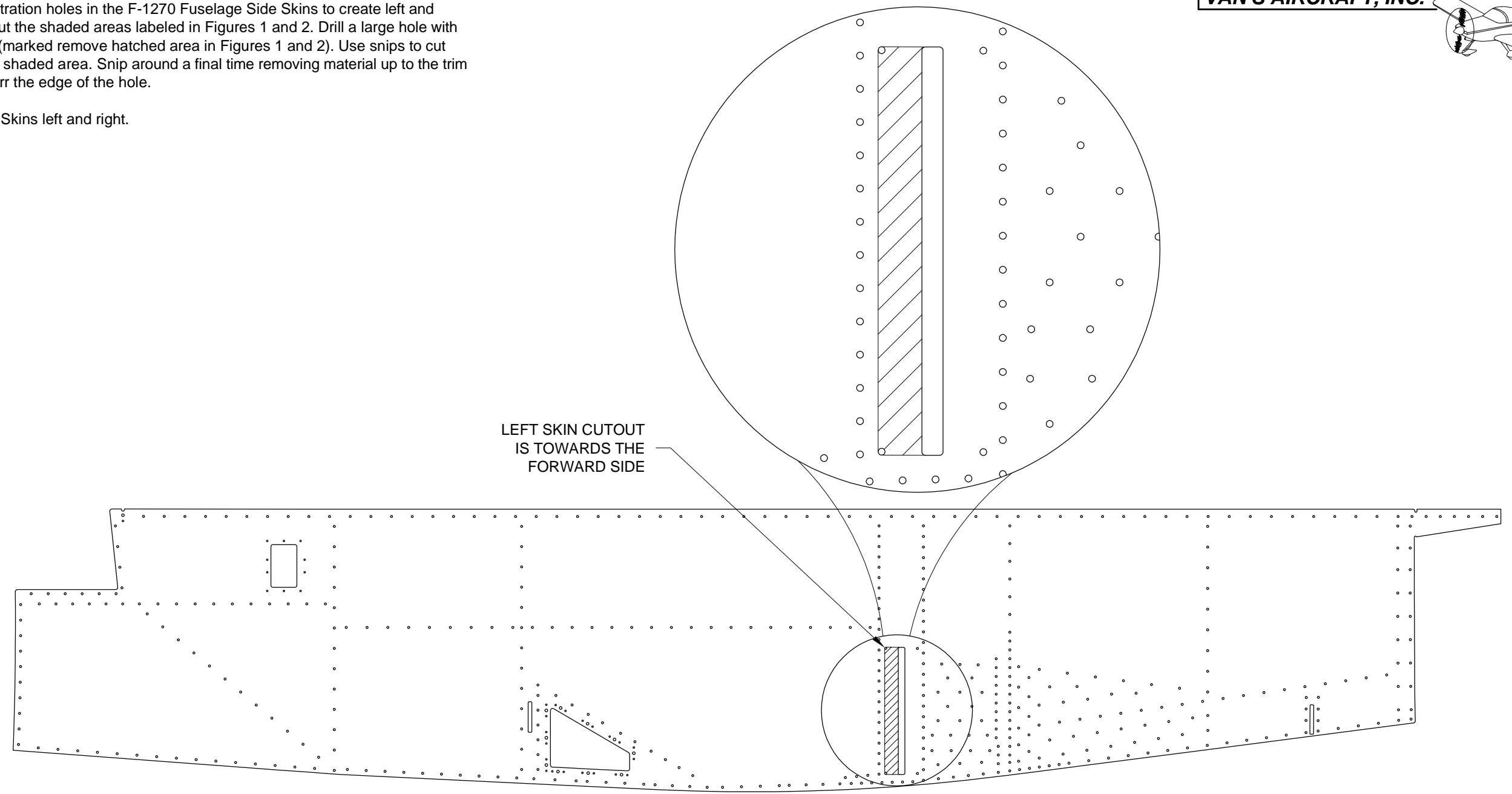


FIGURE 1: MAKING THE LEFT SKIN SPAR CUTOUT

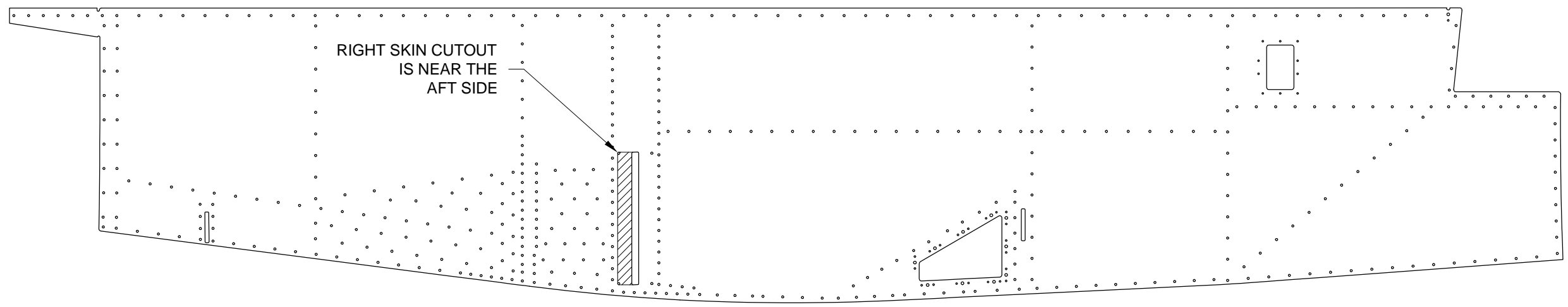


FIGURE 2: MAKING THE RIGHT SKIN SPAR CUTOUT



Step 1: Rivet the F-1202L Gussets to the F-1202E-L & -R Bulkhead Side Channels as shown in Figure 1.

Step 2: Cleco the F-1270-L & -R Fuselage Side Skins (double check left and right), and the F-1270A and F-1270D Side Skin Doublers to the fuselage skeleton. Align the aft edge of the F-1234-L & -R Canopy Decks with the forward edge of the F-1205B Roll Bar Attach Plates.

Align the vertex of the F-1255-L & -R Longerons with the upper edge of the fuselage side skin. Clamp the longeron to the fuselage side skin. Align the outboard edge of the F-1205B Roll Bar Attach Plates with the vertex of the longeron. Clamp the roll bar attach plates to the longeron.

Step 3: Match-Drill #30 and cleco all holes common between the F-1270-L & -R Fuselage Side Skins, the F-1270A and F-1270D Side Skin Doublers and the F-1255-L & -R Longerons. Match-Drill #30 all holes common between the F-1205B Roll Bar Attach Plates and the longerons.

Step 4: Machine Countersink 120° hole locations in F-1270D Side Skin Doublers that use flush rivets (one for left and one for right installation). See Page 23-09 Figure 2 for locations.

Step 5: Remove, deburr and prime the F-1255-L & -R Longerons, F-1270-L & -R Fuselage Side Skins, and the F-1270A and F-1270D Side Skin Doublers. Trim the tab from the aft edge of the fuselage side skins as shown in the detail view in Figure 1. Break the bottom and aft edge of both side skins (See Section 5K).

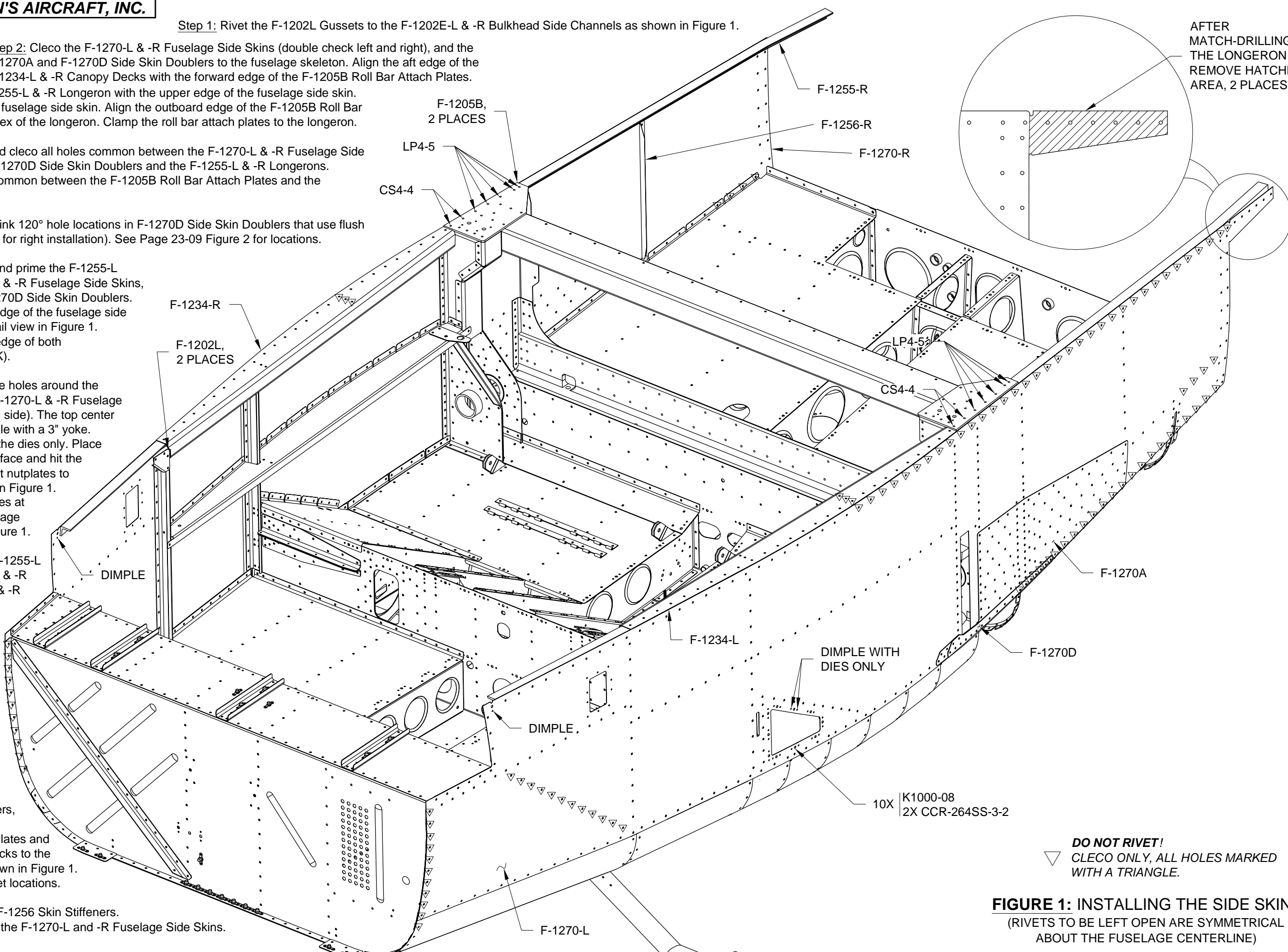
Step 6: Dimple the nutplate holes around the triangular opening in the F-1270-L & -R Fuselage Side Skins (flush outboard side). The top center nutplate hole is inaccessible with a 3" yoke. Dimple these holes using the dies only. Place one die against a solid surface and hit the other with a hammer. Rivet nutplates to these holes as called out in Figure 1. Dimple nutplate attach holes at forward top corner of fuselage side skins as shown in Figure 1.

Step 7: Reassemble the F-1255-L & -R Longerons, F-1234-L & -R Canopy Decks, F-1270-L & -R Fuselage Side Skins and the F-1270A and F-1270D Side Skin Doublers into the fuselage.

CAUTION: Do not rivet the holes marked with a triangle in Figure 1! Cleco these holes for later assembly.

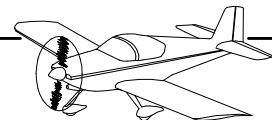
Step 8: Rivet the F-1270-L & -R Fuselage Side Skins, F-1270A and F-1270D Side Skin Doublers, F-1255-L & -R Longerons, F-1205A Roll Bar Attach Plates and F-1234-L & -R Canopy Decks to the fuselage assembly as shown in Figure 1. See 23-09 Figure 1 for rivet locations.

Step 9: Cut apart the two F-1256 Skin Stiffeners. Rivet the skin stiffeners to the F-1270-L and -R Fuselage Side Skins.



DO NOT RIVET!
▽ CLECO ONLY, ALL HOLES MARKED WITH A TRIANGLE.

FIGURE 1: INSTALLING THE SIDE SKINS
(RIVETS TO BE LEFT OPEN ARE SYMMETRICAL ABOUT THE FUSELAGE CENTERLINE)



Step 1: Cut apart the F-1086 Vent Bracket into two F-1086A and two F-1086B Vent Brackets as shown in Figure 1. Cut apart the F-1087 Vent Slide into two F-1087A and two F-1087B Vent Slides as shown in Figure 2.

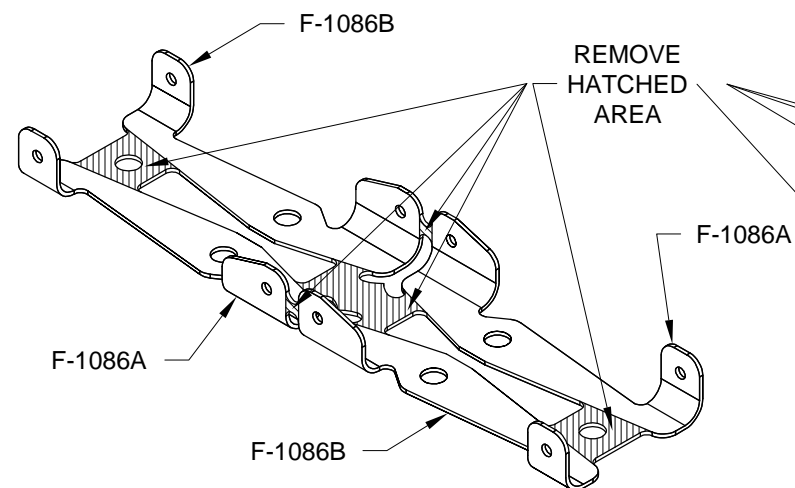


FIGURE 1: CUTTING APART THE VENT BRACKETS

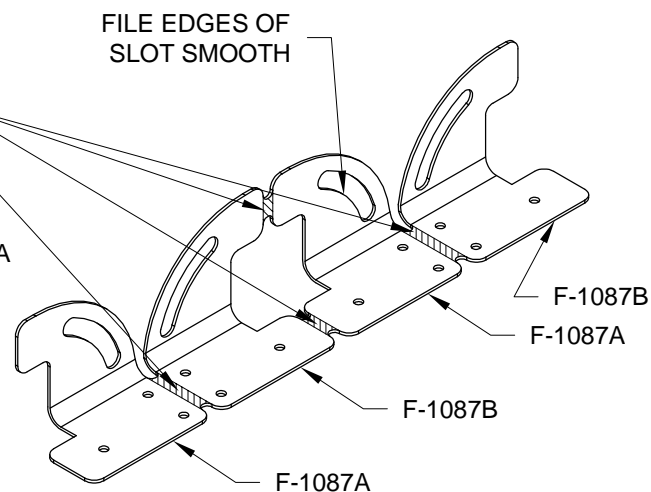


FIGURE 2: CUTTING APART THE VENT SLIDES

Step 2: Cleco the F-1087A Vent Slide, F-1087B Vent Slide, F-1092 Vent Door Doubler and F-1093 Vent Door together as shown in Figure 3. Final-Drill #40 the holes common between these parts. This creates the Vent Door Subassembly. Repeat this step to create a second vent door subassembly.

Step 3: Machine countersink the holes in the F-1093 Vent Doors for flush rivets on the outboard side of the aircraft.

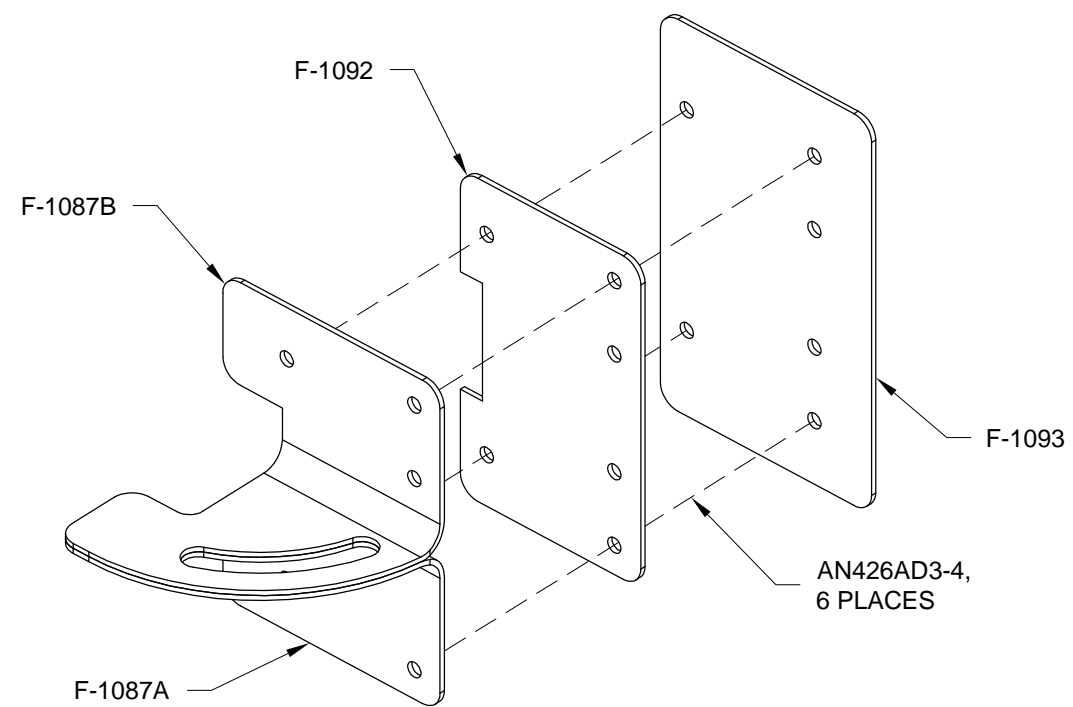


FIGURE 3: ASSEMBLING THE VENT DOOR

Step 4: File the edges of the slot smooth in the F-1087A and F-1087B Vent Slides. Check that an AN525-10R7 Screw smoothly slides along the entire length of the slot.

NOTE: A small block of wood is helpful to hold the tabs of the F-1086A and F-1086B Vent Brackets.

Step 5: Cleco the F-1086A and F-1086B Vent Brackets and the F-1096 Vent Doubler to the left F-1270 Fuselage Side Skin as shown in Figure 4. Final-Drill #30 the holes common between these parts. Repeat this step for the right side of the aircraft.

Step 6: Disassemble the F-1086A and F-1086B Vent Brackets and F-1096 Vent Doublers from the fuselage side skins. Disassemble the Vent Door Subassemblies. Deburr all parts.

Step 7: Rivet the F-1096 Vent Doubler and F-1086A and F-1086B Vent Brackets to the F-1270 Fuselage Side Skin as shown in Figure 4. Repeat this step for the right side of the aircraft.

Step 8: Rivet the F-1087A Vent Slide, F-1087B Vent Slide, F-1092 Vent Door Doubler and F-1093 Vent Door together as shown in Figure 3. Repeat this step to create a second vent door subassembly.

Step 9: Insert the Vent Door Subassembly as shown in Figure 5. Install the hardware through the F-1086A and B Vent Brackets and the slot in the vent door subassembly as shown in Figure 5 (place a 5610-18-31 Nylon Washer in between the F-1086A and F-1086B Vent Brackets). Repeat this step for the right side of the aircraft.

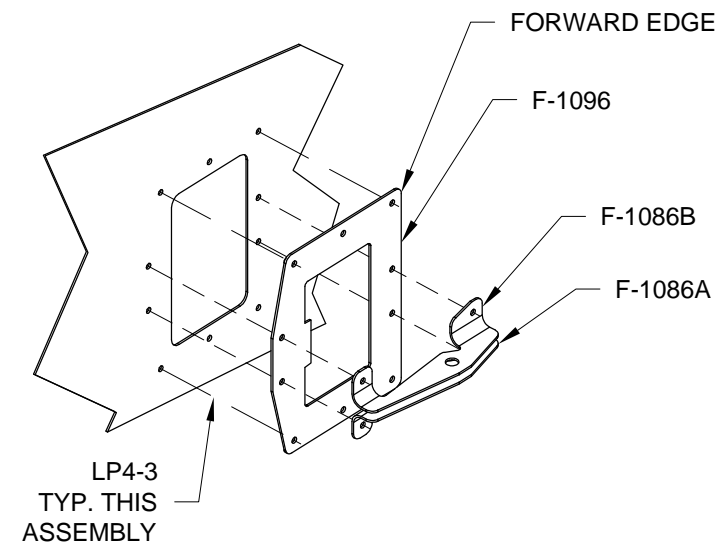


FIGURE 4: ASSEMBLING THE VENT DOUBLER AND BRACKETS

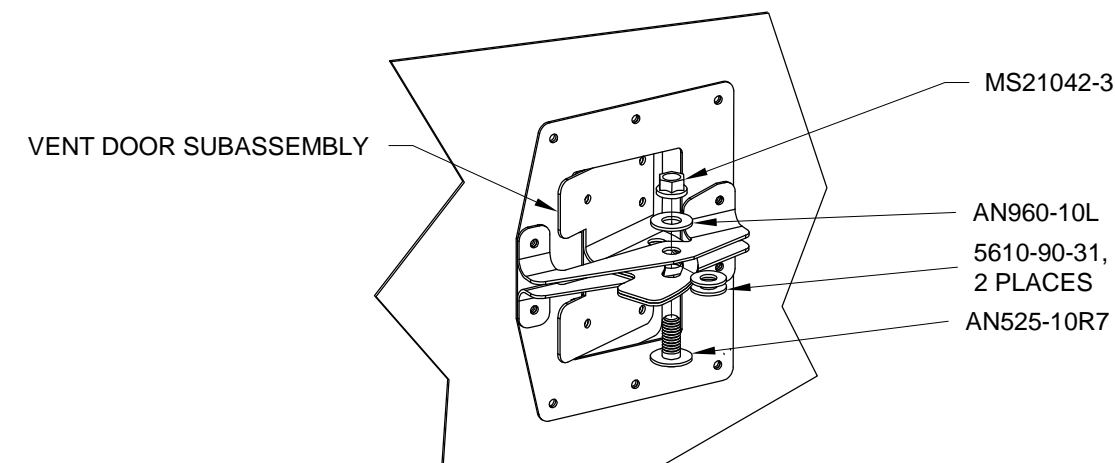


FIGURE 5: INSTALLING THE VENT DOOR SUBASSEMBLY



Step 1: Make two F-12117 Lwr Cowl Hinges 10 inches long from AN257-P3 Piano Hinge. Remove pin before cutting the hinge! See Figure 1.

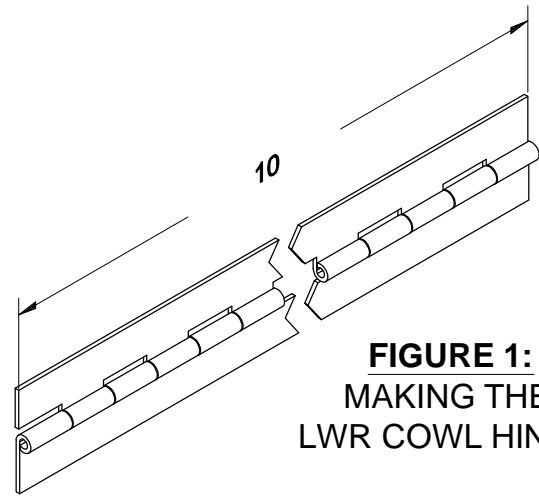


FIGURE 1:
MAKING THE
LWR COWL HINGE

Step 2: Make two F-1201W Firewall Spacers from AS3-020 per the dimensions in Figure 2.

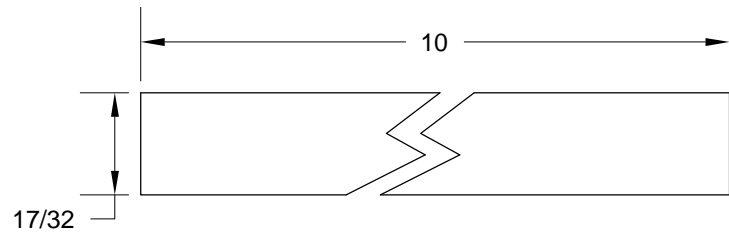


FIGURE 2:
MAKING THE
FIREWALL SPACERS

Step 3: Align the F-1201W Firewall Spacers and fwd edge of the notches in the F-12117 Lwr Cowl Hinges with the forward and upper flange edges of the F-1201C Firewall Bottom as shown in Figure 3. Match-Drill #30 the holes common between the firewall bottom, lwr cowl hinges and the firewall spacers. Remove and deburr the firewall spacers and lwr cowl hinges.

Step 4: Rivet the F-1201W Firewall Spacers and F-12117 Lwr Cowl Hinges to the Fuselage Assembly per the callouts in Figure 3.

UPPER F-1201C
FLANGE EDGE

LP4-3,
TYP.

F-1201W
(UNDER F-12117),
2 PLACES

F-12117,
2 PLACES

F-1201C

FIGURE 3: INSTALLING THE LWR COWL HINGES

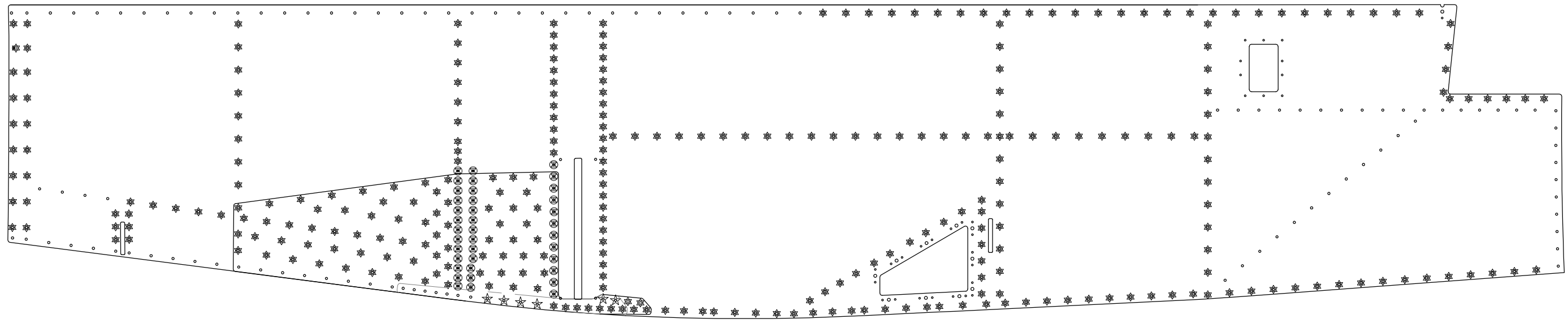
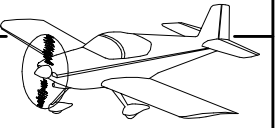
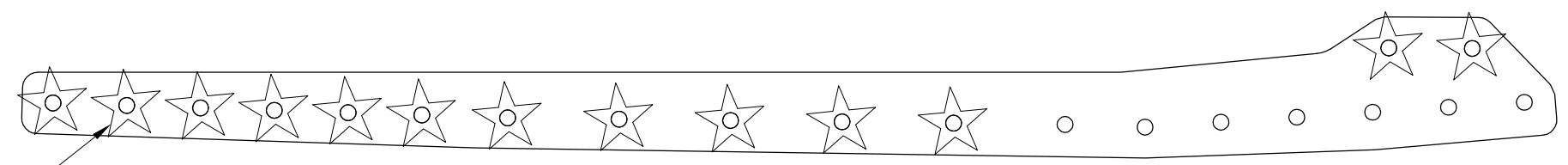


FIGURE 1: SIDE SKIN AND DOUBLERS RIVET CALLOUTS

- ⬠ LP4-3
- ★ CS4-4
- ⊗ CR3213-4-2



MACHINE COUNTERSINK
ALL STARRED HOLE LOCATIONS

FIGURE 2: DOUBLER COUNTERSINK LOCATIONS



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